

REMARKS

Claim 6 is canceled and Claims 9 and 10 are added.

Claims 6-8 are rejected under 35 U.S.C. § 102 (e) as being anticipated by Lee et al. (US 5,727,124, hereinafter Lee). Lee's patent intends to reduce mismatch between signal and stored representation by introducing a transformation on the signal or on the stored representation. (Col.2, lines 37-40). It assumes that the stored signal representations (e.g. blocks 208 (Fig.2), 304 (Fig.3), 408 (Fig.4) in Lee are unchanged. That which is stored in HMM storage device is unchanged. Only a different subset is provided.

On the other hand applicant teaches how to change the representations (in addition to introducing a transformation) for a lower recognition error. It describes how to jointly determine the signal representations and transformations (Equations 21-26).

As pointed out in applicant's specification, the prior art recognition suffers from at least two factors:

- 1.) Mismatch between the environment in which the speech models of the recognizer is trained and the environment the recognizer (together with the trained models) is deployed.
- 2.) Flatness of distributions of speech models as a result of using training data collected from a variety of environments.

Lee's patent only addresses factor (1) above, i.e. reducing mismatch by transforming (i.e. adapting) signal or stored representation (i.e. speech models). (Col. 2, lines 37-40). On the other hand applicant describes a method to deal with both factor (1) and (2) by adjusting both attributes of the recognizer. As more degree of freedom is available, this leads more discriminate stored representation of speech (i.e. speech models) and therefore yields better

accuracy of recognition. Such advantages are evidenced by the experiments included in the application (see Table-1 of applicant's specification), in which line SN+AD (training both signal representation and transformation) clearly gives lower recognition error rate than AD (training transformation alone).

Applicant's Claim 9 calls for " A speech recognizer comprising:

a speech signal source representation;

a set of transformations;

said signal source representation and said set of transformations being jointly determined to reduce the recognition error rate by performing the step of determining a new set of signal source representation and determining new transformations jointly with the new signal source representation".

The Lee reference does not even change the HMM parameter itself. In Lee the speech signal source representation is his fixed HMM 208,304 or 408 and that does not change. The signal source representation and the set of transformations are not jointly determined to reduce the recognition error rate by determining a new set of signal source representation and new transformations jointly. Since this is neither taught nor suggested in Lee Claim 9 is deemed allowable thereover.

Claim 10 dependent on Claim 9 is deemed allowable for at least the same reasons as Claim 9.

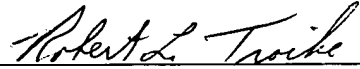
In view of the above remarks, favorable reconsideration and allowance are respectfully requested.

Respectfully submitted,

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Dated: January 17, 2001

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